

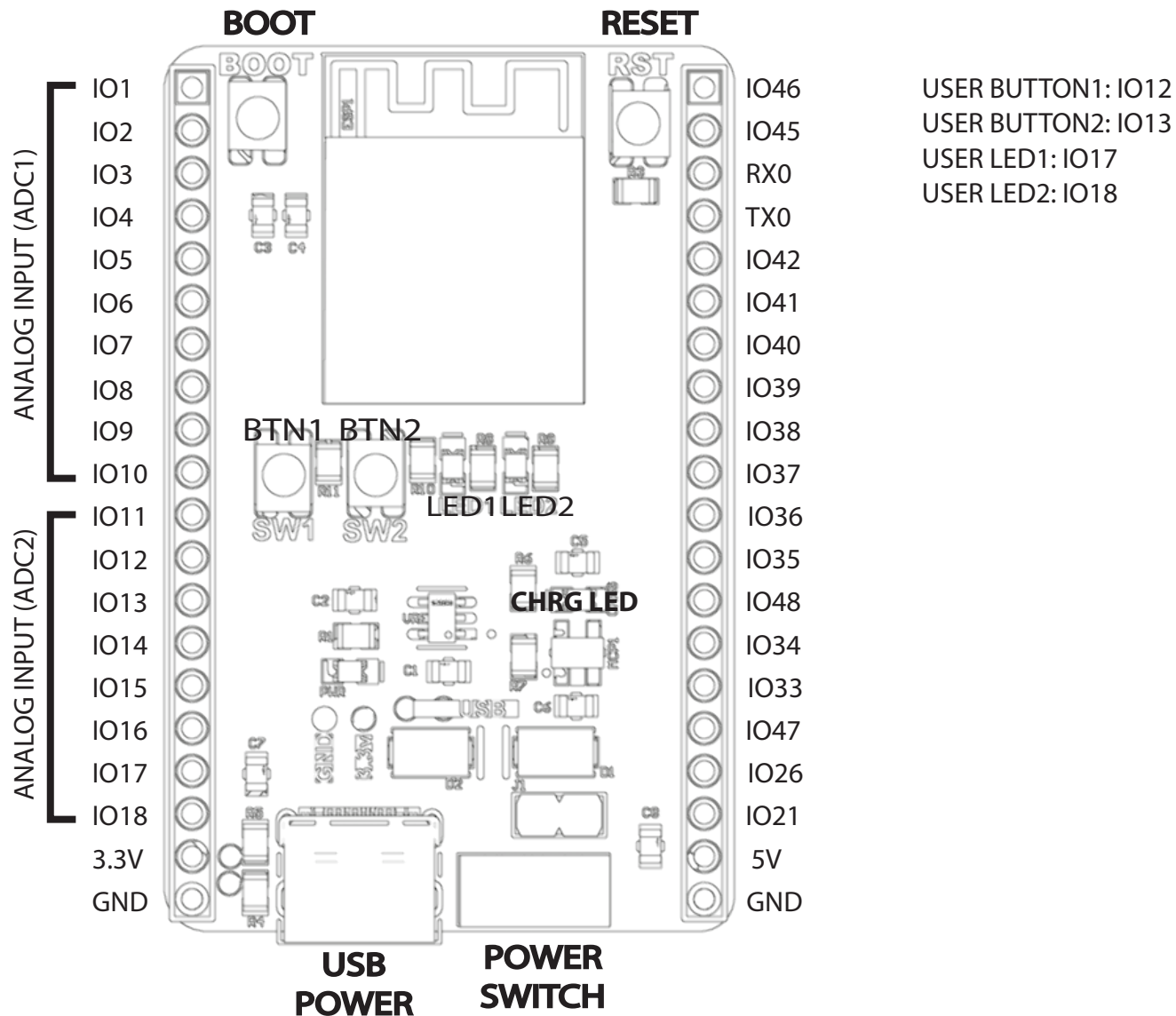
# EnVision

Arts and Engineering Maker Studio

# Getting Started

Tools for Imagination

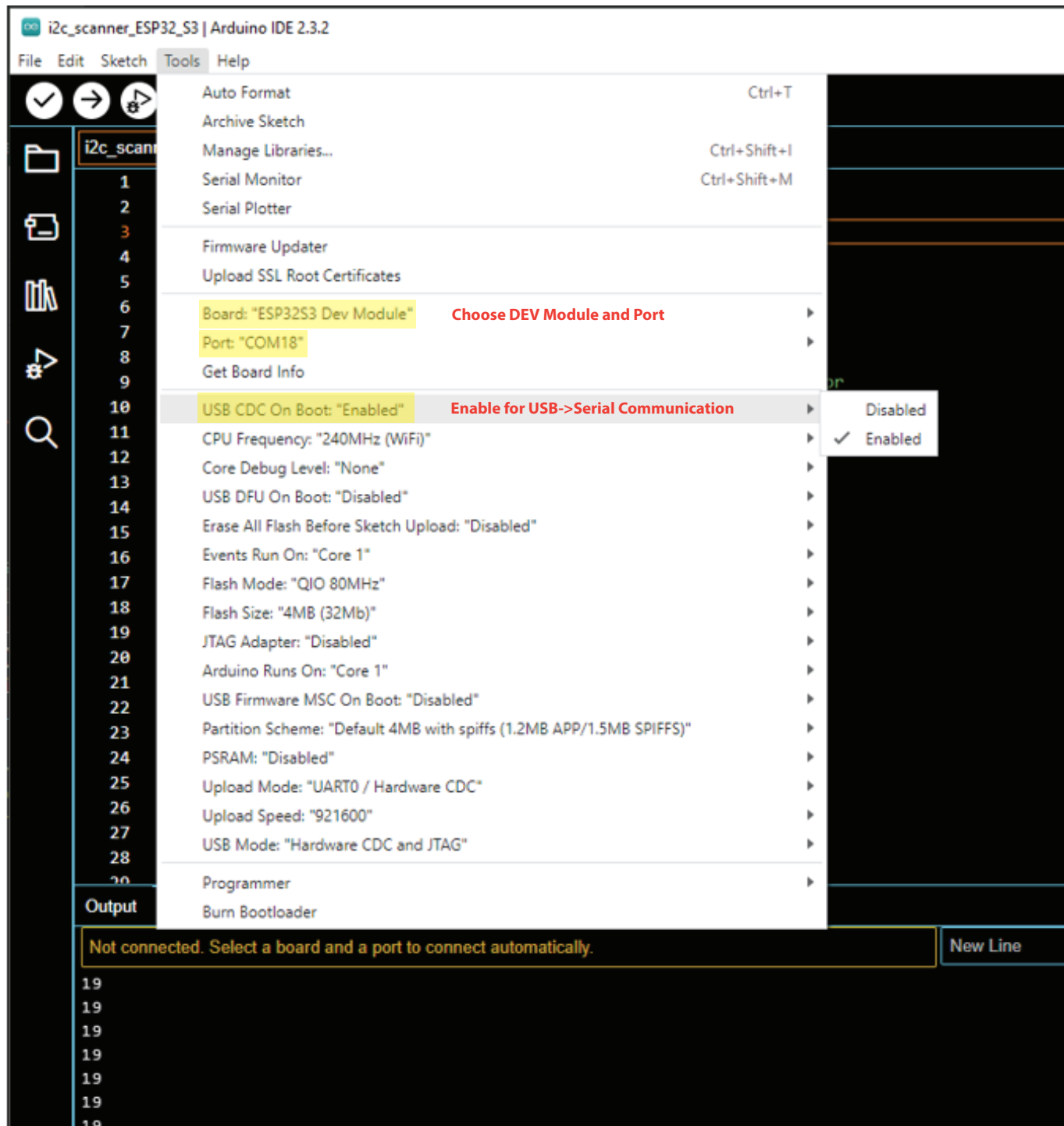
ESP32-S3 Dev Board



**Installing ESP32 Boards for Arduino:**

<https://randomnerdtutorials.com/installing-the-esp32-board-in-arduino-ide-windows-instructions/>

# Tools Settings for ESP32S3 Dev Board

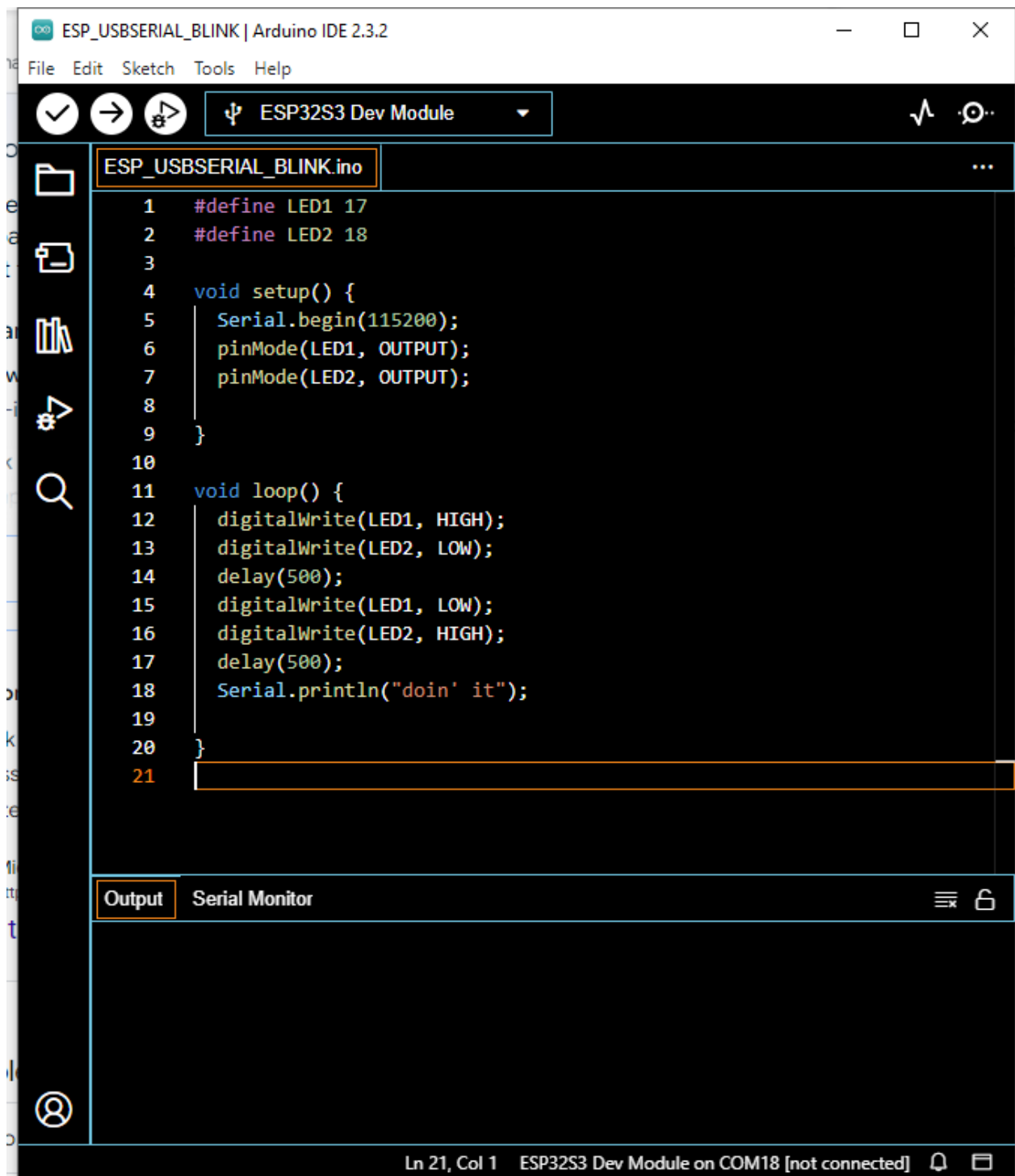


The screenshot shows the Arduino IDE 2.3.2 interface with the 'Tools' menu open. The menu items are as follows:

- Auto Format (Ctrl+T)
- Archive Sketch
- Manage Libraries... (Ctrl+Shift+I)
- Serial Monitor (Ctrl+Shift+M)
- Serial Plotter
- Firmware Updater
- Upload SSL Root Certificates
- Board: "ESP32S3 Dev Module" (Choose DEV Module and Port)
- Port: "COM18"
- Get Board Info
- USB CDC On Boot: "Enabled" (Enable for USB->Serial Communication)
  - Disabled
  - ✓ Enabled
- CPU Frequency: "240MHz (WiFi)"
- Core Debug Level: "None"
- USB DFU On Boot: "Disabled"
- Erase All Flash Before Sketch Upload: "Disabled"
- Events Run On: "Core 1"
- Flash Mode: "QIO 80MHz"
- Flash Size: "4MB (32Mb)"
- JTAG Adapter: "Disabled"
- Arduino Runs On: "Core 1"
- USB Firmware MSC On Boot: "Disabled"
- Partition Scheme: "Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS)"
- PSRAM: "Disabled"
- Upload Mode: "UART0 / Hardware CDC"
- Upload Speed: "921600"
- USB Mode: "Hardware CDC and JTAG"
- Programmer
- Burn Bootloader

The 'Output' window at the bottom shows the message: "Not connected. Select a board and a port to connect automatically." with a "New Line" button.

# BLINK Code for ESP32S3 Dev Board

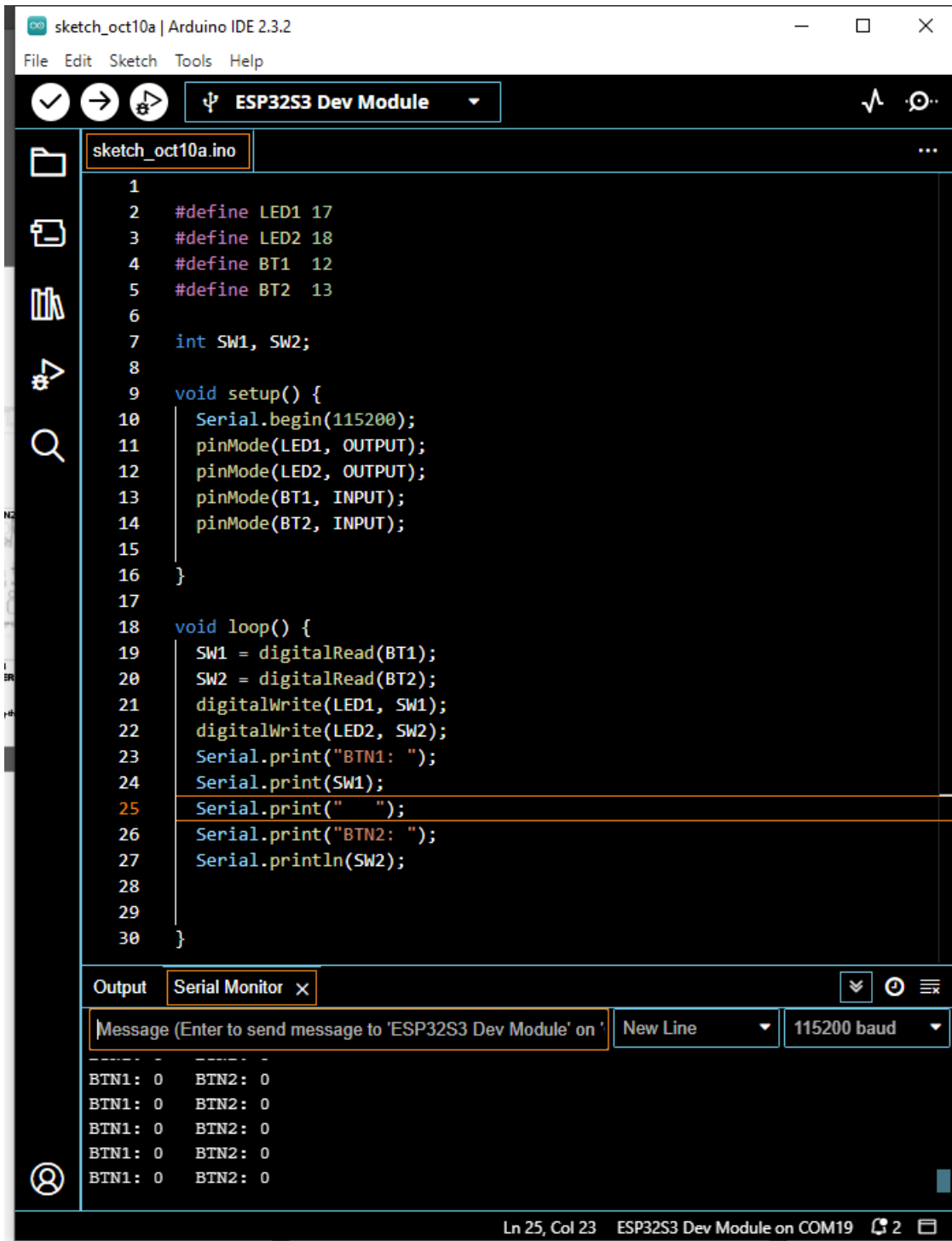


The screenshot shows the Arduino IDE 2.3.2 interface. The main editor window displays the following code for the ESP32S3 Dev Board:

```
1  #define LED1 17
2  #define LED2 18
3
4  void setup() {
5      Serial.begin(115200);
6      pinMode(LED1, OUTPUT);
7      pinMode(LED2, OUTPUT);
8  }
9
10
11 void loop() {
12     digitalWrite(LED1, HIGH);
13     digitalWrite(LED2, LOW);
14     delay(500);
15     digitalWrite(LED1, LOW);
16     digitalWrite(LED2, HIGH);
17     delay(500);
18     Serial.println("doin' it");
19 }
20
21
```

The Serial Monitor is open at the bottom, showing the output of the code. The status bar at the bottom indicates "Ln 21, Col 1" and "ESP32S3 Dev Module on COM18 [not connected]".

# USER Input for ESP32S3 Dev Board



```
1
2 #define LED1 17
3 #define LED2 18
4 #define BT1 12
5 #define BT2 13
6
7 int SW1, SW2;
8
9 void setup() {
10   Serial.begin(115200);
11   pinMode(LED1, OUTPUT);
12   pinMode(LED2, OUTPUT);
13   pinMode(BT1, INPUT);
14   pinMode(BT2, INPUT);
15 }
16
17
18 void loop() {
19   SW1 = digitalRead(BT1);
20   SW2 = digitalRead(BT2);
21   digitalWrite(LED1, SW1);
22   digitalWrite(LED2, SW2);
23   Serial.print("BTN1: ");
24   Serial.print(SW1);
25   Serial.print(" ");
26   Serial.print("BTN2: ");
27   Serial.println(SW2);
28
29
30 }
```

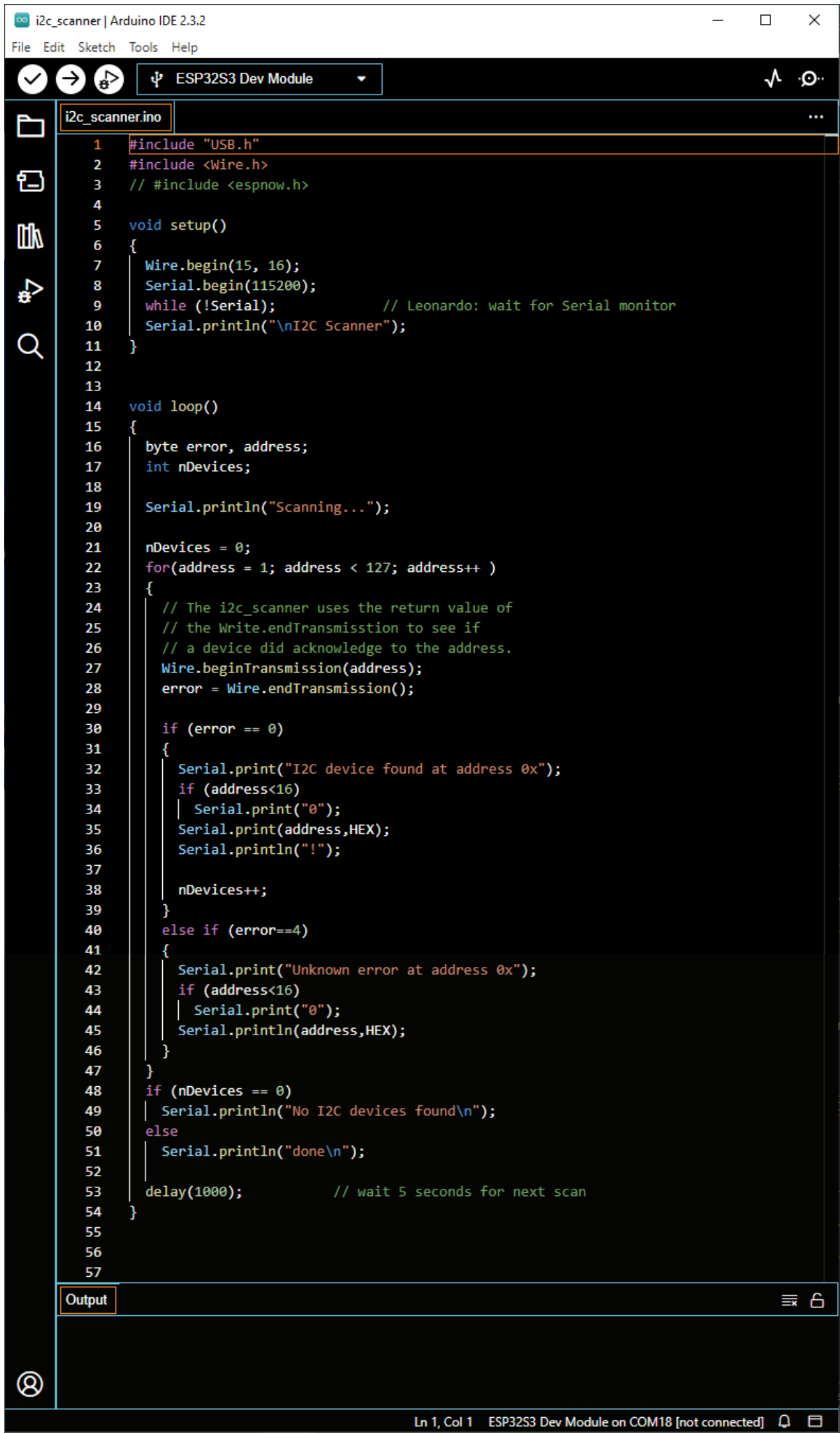
Output Serial Monitor x

Message (Enter to send message to 'ESP32S3 Dev Module' on) New Line 115200 baud

-----  
BTN1: 0 BTN2: 0  
BTN1: 0 BTN2: 0  
BTN1: 0 BTN2: 0  
BTN1: 0 BTN2: 0  
BTN1: 0 BTN2: 0

Ln 25, Col 23 ESP32S3 Dev Module on COM19 2

# I2C Scan for ESP32S3 Dev Board



```
i2c_scanner | Arduino IDE 2.3.2
File Edit Sketch Tools Help
ESP32S3 Dev Module
i2c_scanner.ino
1 #include "USB.h"
2 #include <Wire.h>
3 // #include <espnow.h>
4
5 void setup()
6 {
7   Wire.begin(15, 16);
8   Serial.begin(115200);
9   while (!Serial); // Leonardo: wait for Serial monitor
10  Serial.println("\nI2C Scanner");
11 }
12
13
14 void loop()
15 {
16   byte error, address;
17   int nDevices;
18
19   Serial.println("Scanning...");
20
21   nDevices = 0;
22   for(address = 1; address < 127; address++)
23   {
24     // The i2c_scanner uses the return value of
25     // the Write.endTransmission to see if
26     // a device did acknowledge to the address.
27     Wire.beginTransmission(address);
28     error = Wire.endTransmission();
29
30     if (error == 0)
31     {
32       Serial.print("I2C device found at address 0x");
33       if (address<16)
34         Serial.print("0");
35       Serial.print(address,HEX);
36       Serial.println("!");
37
38       nDevices++;
39     }
40     else if (error==4)
41     {
42       Serial.print("Unknown error at address 0x");
43       if (address<16)
44         Serial.print("0");
45       Serial.println(address,HEX);
46     }
47   }
48   if (nDevices == 0)
49     Serial.println("No I2C devices found\n");
50   else
51     Serial.println("done\n");
52
53   delay(1000); // wait 5 seconds for next scan
54 }
55
56
57
Output
Ln 1, Col 1 ESP32S3 Dev Module on COM18 [not connected]
```

